

Two new Species of Amphientomidae (Insecta: Psocoptera), the first Record of the Family for Australia

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Two new species of Amphientomidae, representing the first species of the family to be recorded from Australia, are described.

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INTRODUCTION

The psocopteran family Amphientomidae has not been recorded from Australia although Mockford (in lit.) has mentioned that the family occurs here. On this authority the family was noted as being Australian in the manuscript of the forthcoming revised edition of the 'Insects of Australia'. While sorting material in the collections of the Australian Museum two specimens have been found, each belonging to an undescribed species. They are described here.

The Amphientomidae now include nearly 80 species, grouped into 18 genera. In the main they are infrequently encountered insects of warm climates. Three genera are known only from amber and there are a few species in the genus *Amphientomum* Pictet which are also known from amber. Current generic definitions are based mainly on venational features but these are gradually being supplemented by other characters as additional material becomes available.

The Amphientomidae are unusual in that they are one of only two families in the order in which the body is clothed with scales, the other family being the unrelated Lepidopsocidae. The members of both bear a superficial resemblance to microlepidopterans and can easily be mistaken for them in the field.

Definitions and illustrations of the main distinguishing features of the family and genera have been given in Smithers (1972); they are not repeated here. The two new species fall clearly into the genera *Hemiseopsis* Enderlein and *Seopsis* Enderlein respectively.

SYSTEMATIC DESCRIPTIONS

Hemiseopsis alettae sp. nov.

FEMALE

Coloration (in alcohol). Head and body pale testaceous, the head a little darker than body and legs. Eyes reddish brown.

Morphology. Length of body: 3.1mm. Median epicranial suture fine but very distinct, anterior arms absent. Pilosity of head very fine. No hairs between ommatidia. Length of flagellar segments: f_1 : 0.14mm; f_2 : 0.19mm. First flagellar segment broader in basal half than in distal half, attachment to pedicel very narrow. Second flagellar segment longer than first. Antennal striations very fine and dense. Scape and pedicel broad. Eyes large, not protruding from head capsule except behind. Dorsal margin continuous with vertex. Seen from above eyes curve towards each other anteriorly continuing curvature of head. IO/D: 1.6; PO: 0.5. Lateral ocelli small, situated about a third of

distance from eye to median epicranial suture, opposite about middle of eye. Lacinia (Fig. 2) curved. Maxillary palp densely beset with microtrichia. Second segment with small sensory cone and broader than third and fourth segments. Measurements of hind leg: F: 0.6mm; T: 1.0mm; t_1 : 0.68mm; t_2 : 0.11mm; t_3 : 0.13mm; rt: 6.2:1:1.2; ct:27,0,0. Ctenidiobothria very strong with well developed basal combs. Femur of anterior legs without cones along internal margin. Tibia of second pair of legs with external spine about half way along length in addition to usual apical spines. Femur of third leg with strong, curved, dorsal apical spine. Tibia of third leg with seven ventral spines in distal half in addition to usual apical spines. Claws with one preapical tooth and row of setulae basad of tooth. Fore wing length: 2.5mm; width: 0.78mm. Fore wing (Fig. 1) almost parallel-sided, rounded apically. Basal section of Sc ends in somewhat thickened costa. Distal section of Sc absent. R_1 parallel with costal margin basad of the elongate stigmapophysis beyond which it bends to meet costal margin. Rs divides between origins of M_2 and M_3 . Cu_1 divides opposite stigmapophysis. Hind wing with R_1 present. M simple. Epiproct lightly sclerotized, simply rounded behind with preapical row of setae basad of which setae are sparsely and irregularly arranged. Paraprocts simple, without clearly defined trichobothrial field but with a few large setae without patterned area around base. Subgenital plate simple. Gonapophyses (Fig. 3) with ventral valve greatly attenuated ending in sharp point, with ventral membranous flange. Dorsal valve broad in basal half, narrowing abruptly to form long tapering extension which matches and lies adjacent to that of ventral valve. External valve tapering to bluntly rounded end, with strongly developed dorsal lobe.

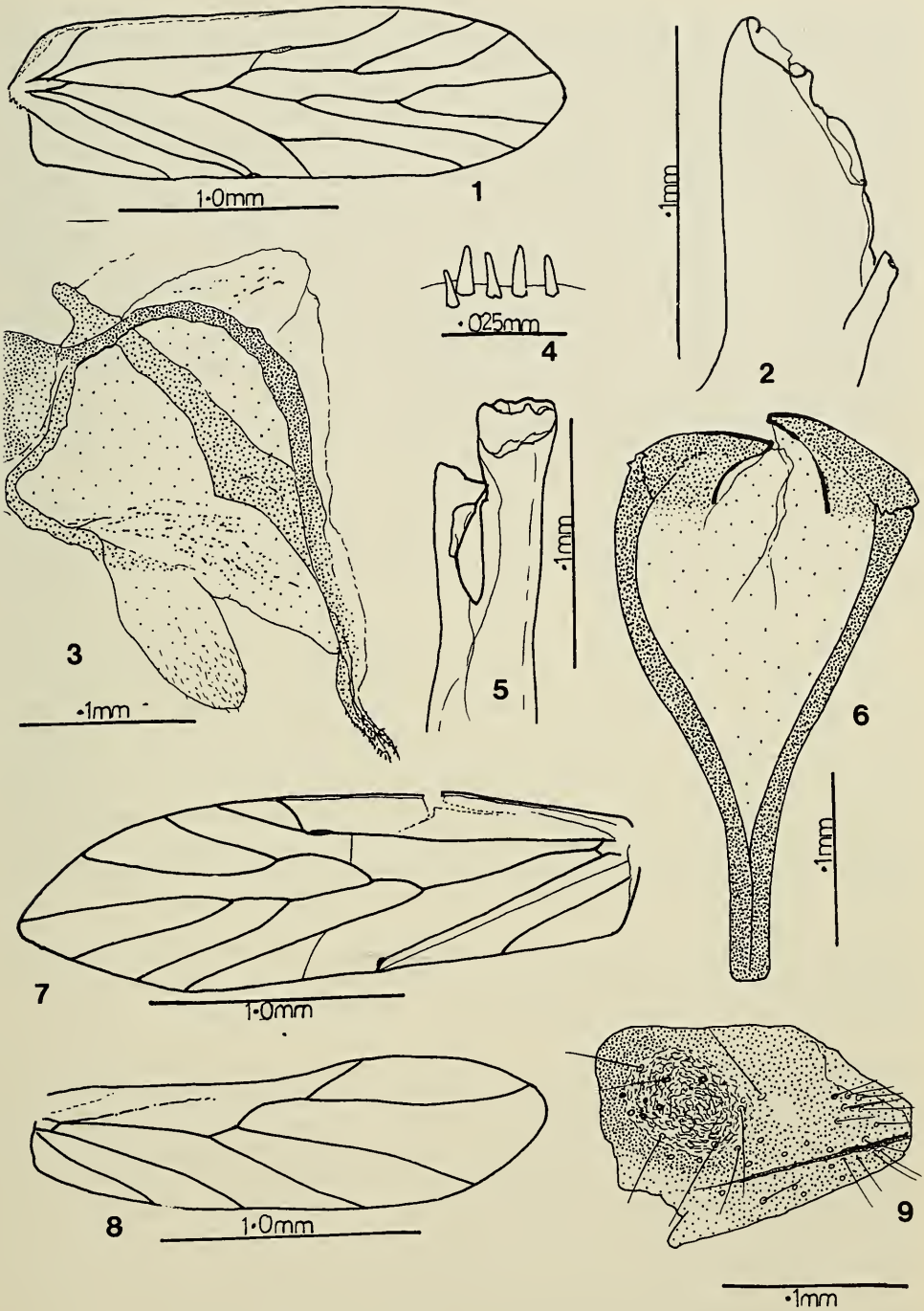
MATERIAL EXAMINED. Holotype female, Falbrook, N. Singleton, New South Wales, 26.i.1979. A. S. Smithers. Holotype in Australian Museum. This species is named for my wife who collected the type specimen.

DISCUSSION. Four species of *Hemiseopsis* have now been described, three from Africa and the present species from Australia. The genus may also occur in Jamaica (Turner, 1975). *H. alettae* is smaller than *H. fuellerborni* (Enderlein) from Tanzania, Zaïre, Angola and Zambia. In that species Rs divides opposite the origin of M_3 , Rs lies much further from R_1 and Cu_{1b} is much shorter than in *H. alettae*. The basal section of Rs is very much shorter than R_{2+3} . The genitalia of *H. fuellerborni* have not been described. *H. machadoi* Badonnel, from Angola, is only a little larger than *H. alettae* but can be distinguished by features of the wing venation and the female genitalia. In *H. machadoi* R_1 does not reach the wing margin and the crossvein from R_1 meets M basad of its separation from Rs. M_3 arises opposite the division of Rs and Cu_{1b} is much shorter than in *H. alettae*. The ventral and dorsal valves of the gonapophyses are not strongly attenuated, reaching only as far as the end of the external valve. In *H. alettae* they extend far beyond the end of the external valve. In *H. machadoi* the lacinia is straight with a different arrangement of apical teeth from that in *H. alettae*. In *H. obscurus* Broadhead and Richards, from Kenya, several of the veins of the fore wing in the basal half are weakly differentiated. The ventral and dorsal valves of the gonapophyses are not attenuated but are blunt; the dorsal lobe of the external valve is longer than the valve itself, a condition not found in any of the species of which the genitalia have been described. The head of *H. obscurus* has a distinctive colour pattern not found in any of the other species.

Seopsis incisa sp. nov.

MALE

Coloration (in alcohol). Head pale brown with brown markings. A narrow brown



Figs 1-9. *Hemiseopsis alettae* sp. nov. 1, female fore wing. 2, female lacinia. 3, female gonapophyses. *Seopsis incisa* sp. nov. 4, male femoral spines. 5, male lacinia. 6, male phallosome. 7, male fore wing. 8, male hind wing. 9, male paraproct.

mark on each epicranial plate along the ridge of the vertex; a diffuse, broad brown band across the front of the head from eye to eye; a narrow band in position usually occupied by anterior arms of epicranial suture, this broadened laterally to form a small patch just anterior to the lateral ocellus on each side; posterior half of postclypeus with a reticulate pattern in brown, part of which consists of narrow, longitudinal, parallel lines, the pattern extending further anteriorly in the midline than laterally: postclypeus pale in anterior half. Labrum pale. Lower half of genae brown. Antennae dark brown. Eyes black. Ocelli circled with dark brown. Thorax pale brown, darker along some sutures. Abdomen pale, darker dorsally on basal quarter and with suggestion of irregular segmental marks, laterally dark. Femora pale. Fore and middle tibiae pale in basal half, brown in distal half. Hind tibiae pale. First tarsal segment pale in basal half, darker in distal half but with pale tip. Second and third segments brown. Fore wing membrane hyaline, faintly tinged with brown, paler in distal third. Hind wing hyaline.

Morphology. Length of body: 2.3mm. Median epicranial suture fine but distinct. Anterior arms indistinct but position marked by brown band. Vertex slightly curved. Length of flagellar segments: f_1 :0.31m; f_2 :0.34mm. Antennal flagellum very fine, with very long setae from 7 to 15 times as long as flagellar width. Transverse striations of antennae very numerous. Eyes large, but hardly protruding. Upper margin almost level with vertex, extending a little behind head laterally. Fine, short setae between facets. Three ocelli. Lateral ocelli close to antero-medial angle of eyes, median ocellus in middle of frons so that the three ocelli are almost in a straight line. Lacinia (Fig. 5) almost straight, deeply divided at apex. Measurements of hind leg: F: 0.5mm; T: 0.98mm; t_1 : 0.54mm; t_2 : 0.1mm; t_3 : 0.1mm; rt: 5.4:1:1; ct: 19,0,0. Front femur with long row of short spines (Fig. 4). Claws with one preapical tooth. Fore wing length: 2.5mm; width: 0.76mm. Fore wing (Fig. 7) narrows to somewhat pointed apex. Venation as usual in genus but distal section of Sc and Cu_{1+2} evanescent and less obvious than other veins. Hind wing length: 2.0mm; width: 0.6mm. Hind wing (Fig. 8) with R_1 not reaching wing margin. IA curves distally towards hind margin. Epiproct simple, rounded behind, setose. Paraproct (Fig. 9) with finely and densely rugose, slightly raised area from which large setae arise. Bases of setae not surrounded by 'rosette' pattern often encountered in barklice. Hypandrium well sclerotized, simple, posteriorly and laterally slightly upturned. Eighth sternite more heavily sclerotized than more anterior sternites and forming an anterior extension to the hypandrium. Phallosome (Fig. 6).

MATERIAL EXAMINED. Holotype male, Malaise trap, 14°49'S, 125°50'E, mining camp, Mitchell Plateau, Western Australia, 9-19.v.1983. I. D. Naumann and J. C. Cardale. Holotype in Australian National Insect Collection, Canberra.

DISCUSSION. *Seopsis* is now a genus of ten species. There are three from Sri Lanka, two from the Philippines, two from Angola and one from each of Nepal, Singapore and Australia. *S. brunnea* New, from Singapore, differs from *S. incisa* in lacking the dark postclypeal pattern, in having a lacinia without a deeply divided apex and in lacking the row of spines on the fore femur. The male phallosome is similar to that of *S. incisa* in general form but differs in proportions. *S. luzonica* Banks, from the Philippines, differs in having a brown head with a pale transverse band at the level of the ocelli and in having two dark marks on each side on the vertex. In *S. metallops* Enderlein, from Sri Lanka, the head is black or dark brown with a pale spot in the middle of the front of the head and a similar spot on each half of the vertex. The lateral ocelli are much further from the eyes than in *S. incisa*. The membrane of the fore wing is dark. The basal segment of the hind tarsus is more than seven times the length of the second segment, whereas it is only 5.4 times as long in *S. incisa*. *S. nepalensis* New, from Nepal, has the posterior part of the postclypeus

pale, not dark as in *S. incisa*. The fore wing is acuminate and there are accessory sclerites internally at the posterior ends of the male parameres. The apex of the lacinia is not deeply divided. *S. pavonia* Badonnel, from Angola, has the fore wing strongly acuminate and the lacinia is not deeply divided. *S. termitophila* Badonnel, also from Angola, has much shorter wings than *S. incisa* (1.7mm as opposed to 2.5mm). The apex of the lacinia is not deeply divided and the male phallosome has a pair of pitted plates, internally, adjacent to the ends of the parameres. *S. superba* Hagen, from Sri Lanka, has a brown head with a darker longitudinal band on the vertex. The ocelli are close together. The basal tarsal segment of the hind legs is very much longer than in *S. incisa*, being about seven times as long as the second. *S. tricolor* Banks, from the Philippines, has a brown head and the lateral ocelli are set well away from the eyes. It is larger than *S. incisa* (fore wing length 3.5mm as opposed to 2.5mm). The illustration of the wing which accompanies the description shows no distal section to Sc, an unusual condition for this genus. *S. vasantasena* Enderlein, from Sri Lanka, has a brownish yellow head with four narrow, longitudinal streaks from the vertex down onto the front of the head; the postclypeus has a double, broad brown longitudinal band. The fore wing length is only 2.0mm.

References

- SMITHERS, C. N., 1972. — The classification and phylogeny of the Psocoptera. *Aust. Mus. Mem.* 14: 1-349.
TURNER, B. D., 1975. — The Psocoptera of Jamaica. *Trans Roy. ent. Soc. Lond.* 126(4): 533-609.